

UN1111/1112/1113/1114/1115/1116/1117/1118/1119/1110/ 111D/111E/111F/111H/111L

Silicon PNP epitaxial planer transistor

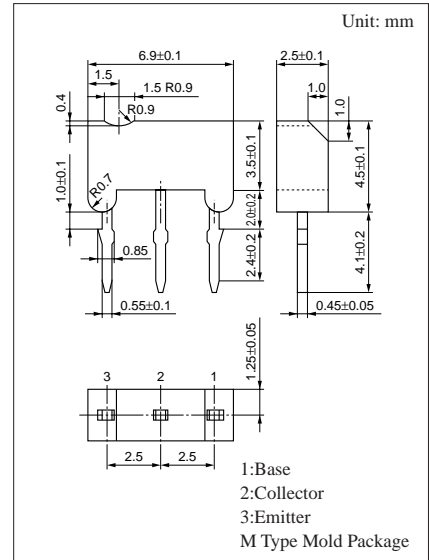
For digital circuits

Features

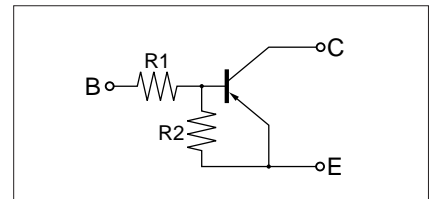
- Costs can be reduced through downsizing of the equipment and reduction of the number of parts.
- M type package allowing easy automatic and manual insertion as well as stand-alone fixing to the printed circuit board.

Resistance by Part Number

	(R ₁)	(R ₂)
• UN1111	10kΩ	10kΩ
• UN1112	22kΩ	22kΩ
• UN1113	47kΩ	47kΩ
• UN1114	10kΩ	47kΩ
• UN1115	10kΩ	—
• UN1116	4.7kΩ	—
• UN1117	22kΩ	—
• UN1118	0.51kΩ	5.1kΩ
• UN1119	1kΩ	10kΩ
• UN1110	47kΩ	—
• UN111D	47kΩ	10kΩ
• UN111E	47kΩ	22kΩ
• UN111F	4.7kΩ	10kΩ
• UN111H	2.2kΩ	10kΩ
• UN111L	4.7kΩ	4.7kΩ



Internal Connection



Absolute Maximum Ratings (T_a=25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V _{CBO}	-50	V
Collector to emitter voltage	V _{CEO}	-50	V
Collector current	I _C	-100	mA
Total power dissipation	P _T	400	mW
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

UN1111/1112/1113/1114/1115/1116/1117/1118/
Transistors with built-in Resistor 1119/1110/111D/111E/111F/111H/111L

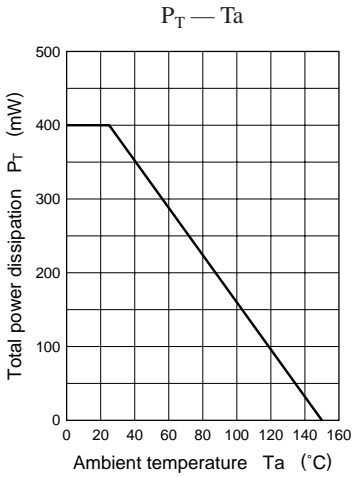
■ Electrical Characteristics (T_a=25°C)

Parameter		Symbol	Conditions	min	typ	max	Unit	
Collector cutoff current		I _{CBO}	V _{CB} = -50V, I _E = 0			-0.1	μA	
		I _{CEO}	V _{CE} = -50V, I _B = 0			-0.5	μA	
Emitter cutoff current	UN1111	I _{EBO}	V _{EB} = -6V, I _C = 0			-0.5	mA	
	UN1112/1114/111E/111D					-0.2		
	UN1113					-0.1		
	UN1115/1116/1117/1110					-0.01		
	UN111F/111H					-1.0		
	UN1119					-1.5		
	UN1118/111L					-2.0		
Collector to base voltage		V _{CBO}	I _C = -10μA, I _E = 0	50			V	
Collector to emitter voltage		V _{CEO}	I _C = -2mA, I _B = 0	50			V	
Forward current transfer ratio	UN1111	h _{FE}	V _{CE} = -10V, I _C = -5mA	35			V	
	UN1112/111E			60				
	UN1113/1114			80				
	UN1115*/1116*/1117*/1110*			160		460		
	UN111F/111D/1119/111H			30				
	UN1118/111L			20				
Collector to emitter saturation voltage		V _{CE(sat)}	I _C = -10mA, I _B = -0.3mA			-0.25	V	
Output voltage high level		V _{OH}	V _{CC} = -5V, V _B = -0.5V, R _L = 1kΩ	-4.9			V	
Output voltage low level		V _{OL}	V _{CC} = -5V, V _B = -2.5V, R _L = 1kΩ			-0.2	V	
			V _{CC} = -5V, V _B = -3.5V, R _L = 1kΩ			-0.2		
			V _{CC} = -5V, V _B = -10V, R _L = 1kΩ			-0.2		
			V _{CC} = -5V, V _B = -6V, R _L = 1kΩ			-0.2		
Transition frequency		f _T	V _{CB} = -10V, I _E = 2mA, f = 200MHz		80		MHz	
Input resistance	UN1111/1114/1115	R _I		(-30%)	10	(±30%)	kΩ	
	UN1112/1117							22
	UN1113/1110/111D/111E							47
	UN1116/111F/111L							4.7
	UN1118							0.51
	UN1119							1
	UN111H							2.2
Resistance ratio	UN1111/1112/1113/111L	R _I /R ₂			0.8	1.0	1.2	
	UN1114				0.17	0.21	0.25	
	UN1118/1119				0.08	0.1	0.12	
	UN111D					4.7		
	UN111E					2.14		
	UN111F					0.47		
	UN111H				0.17	0.22	0.27	

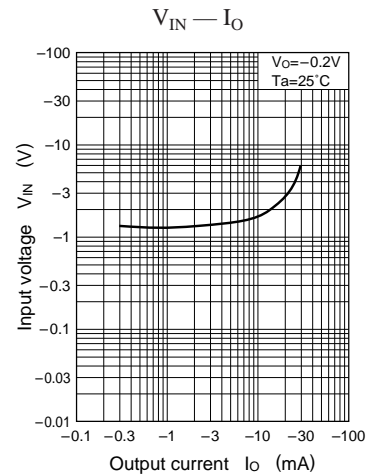
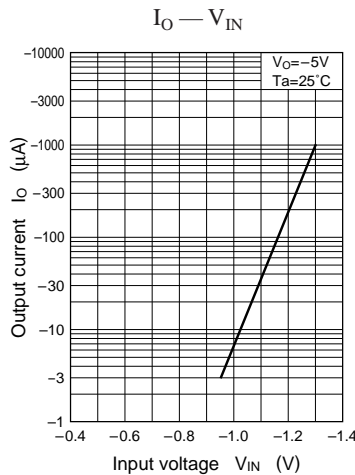
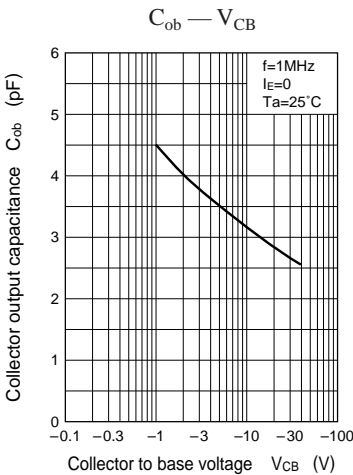
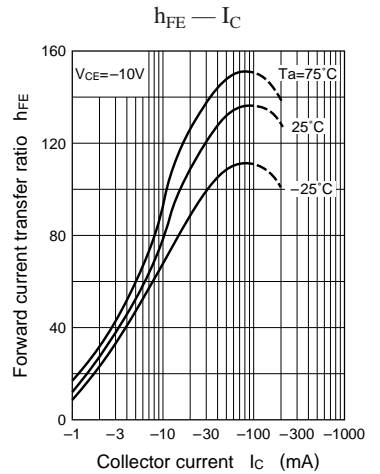
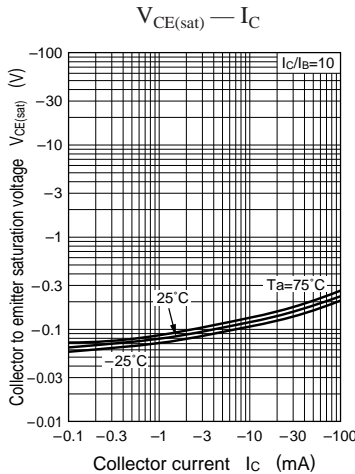
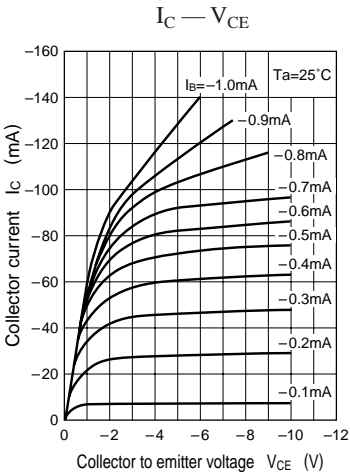
* h_{FE} rank classification (UN1115/1116/1117/1110)

Rank	Q	R	S
h _{FE}	160 to 260	210 to 340	290 to 460

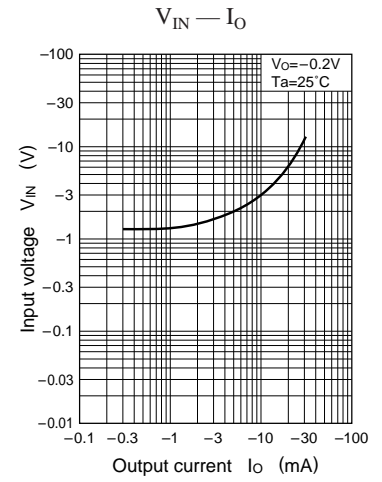
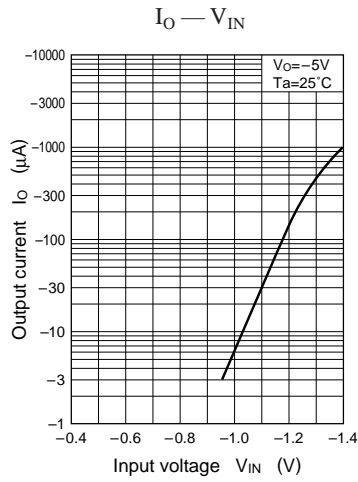
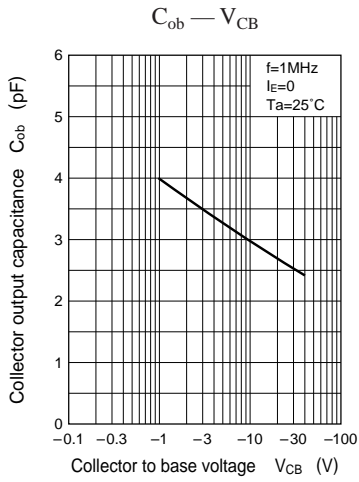
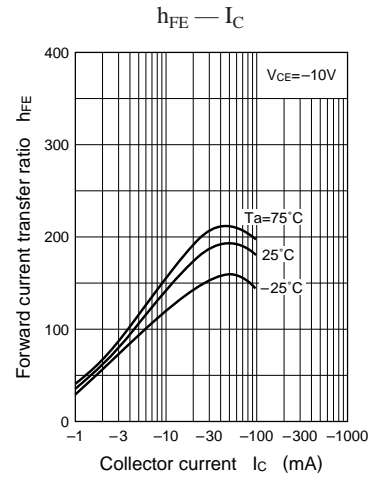
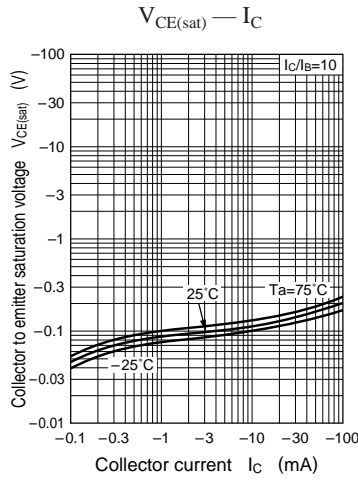
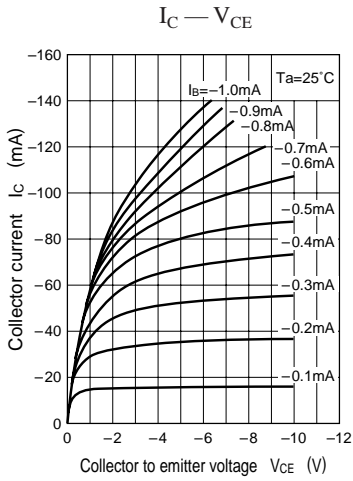
Common characteristics chart



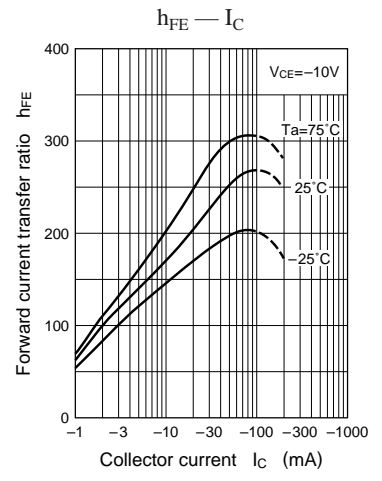
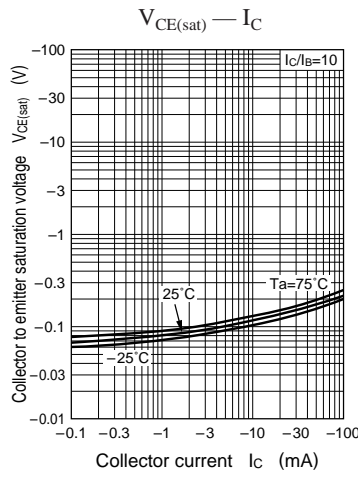
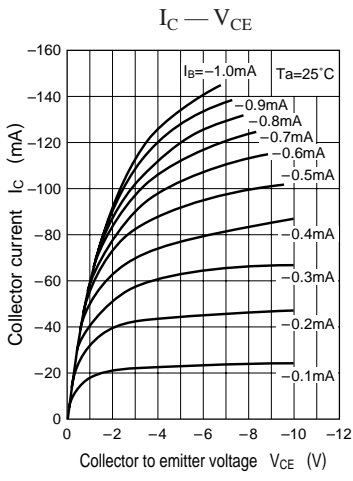
Characteristics charts of UN1111

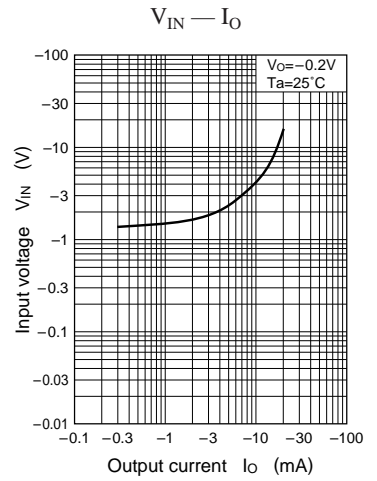
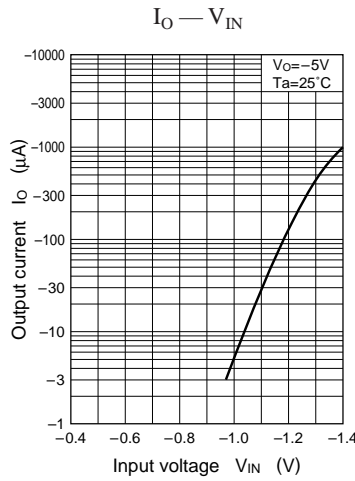
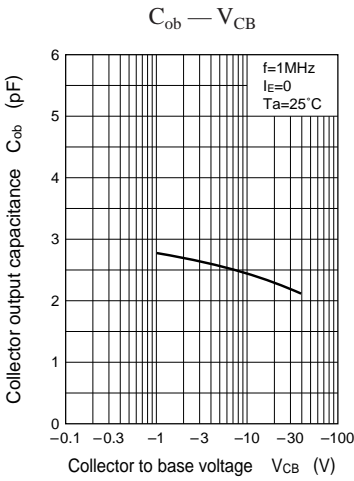


Characteristics charts of UN1112

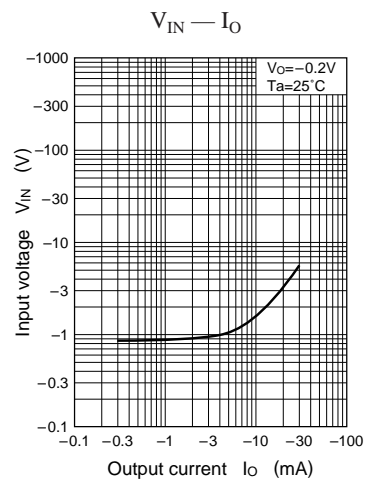
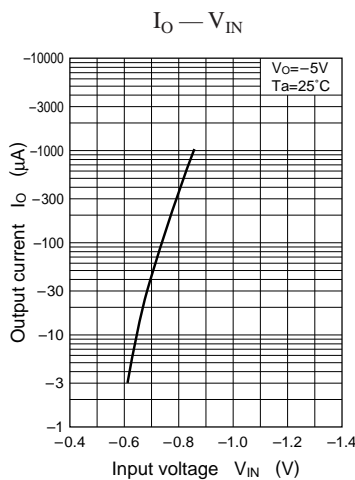
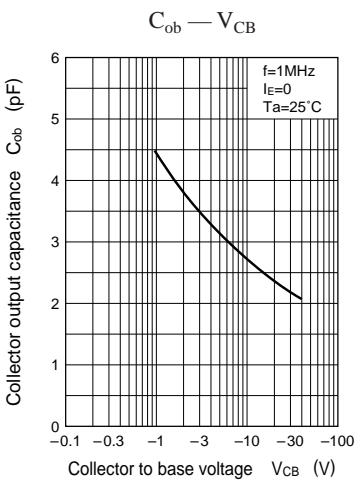
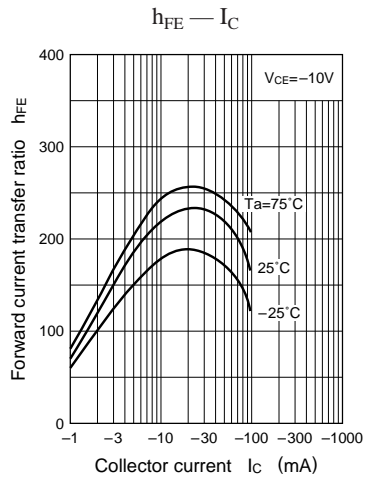
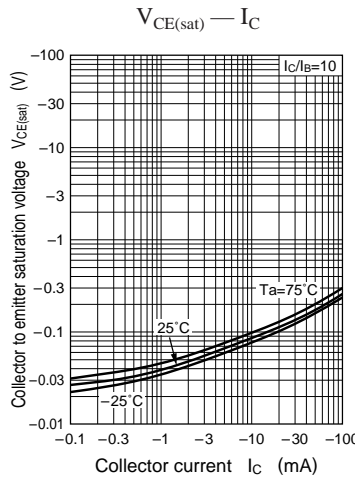
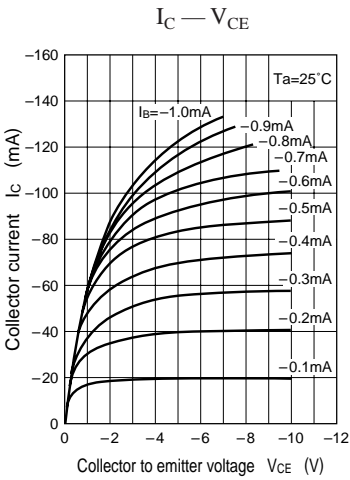


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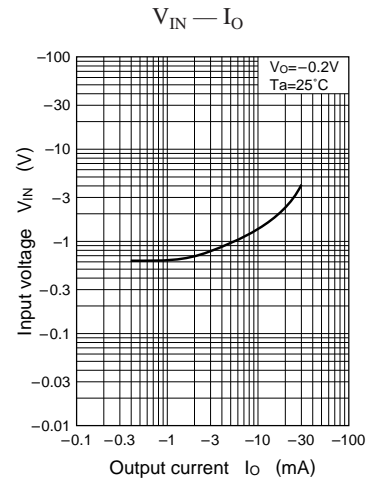
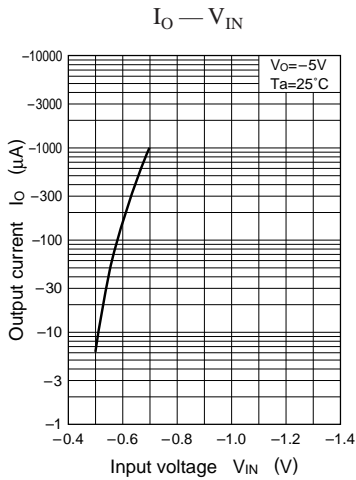
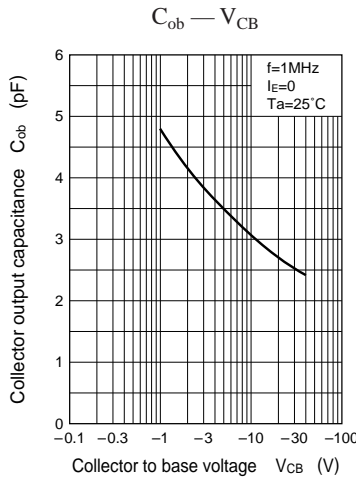
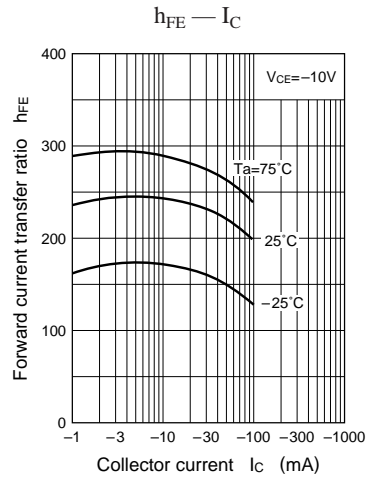
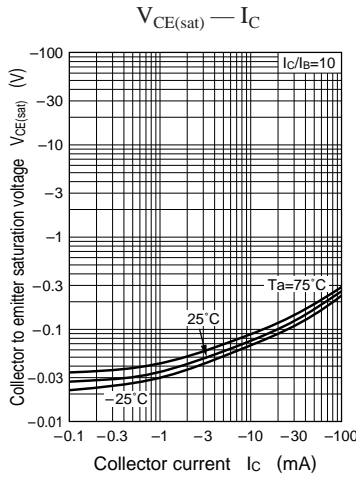
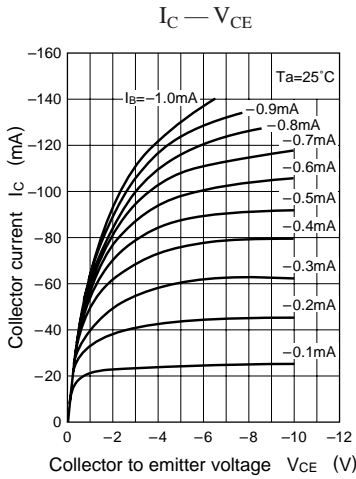




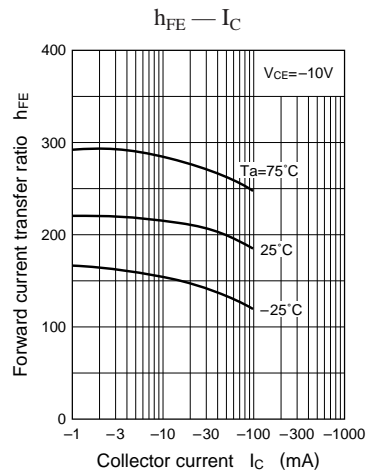
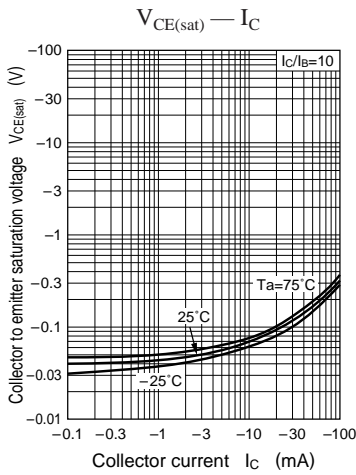
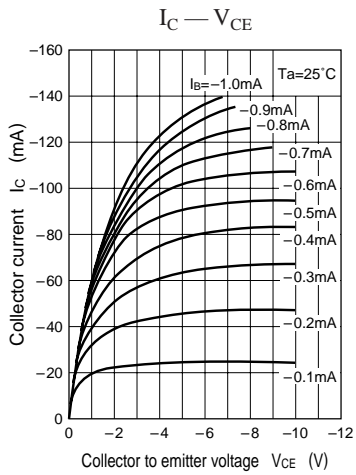
Characteristics charts of UN1114

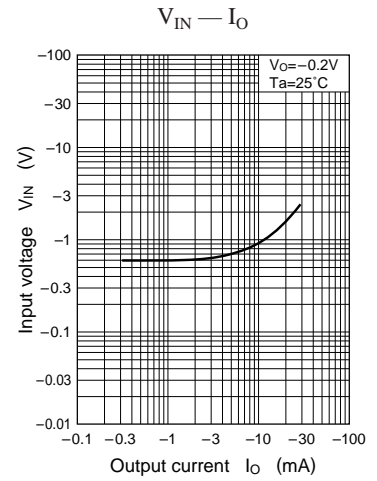
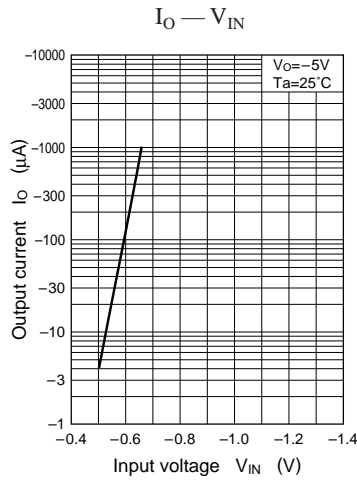
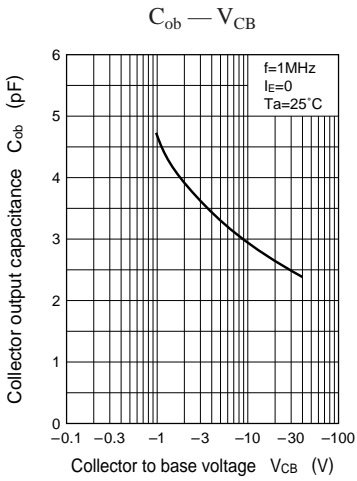


Characteristics charts of UN1115

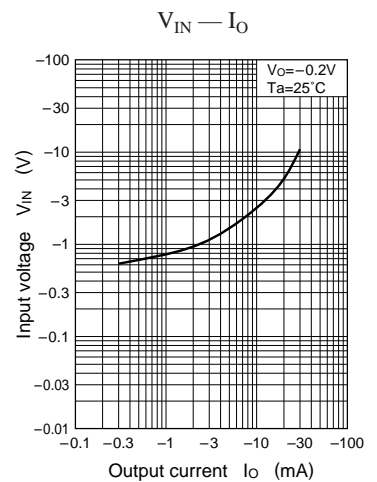
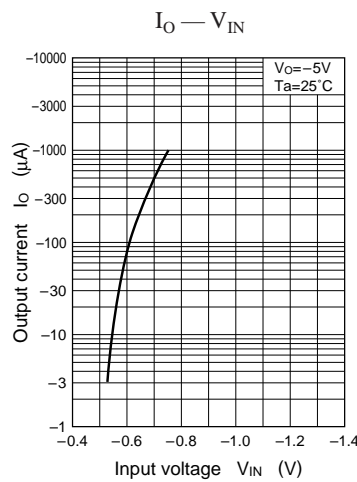
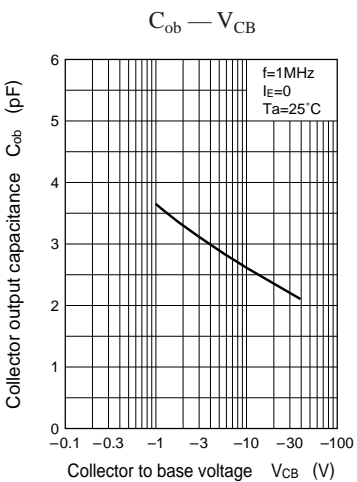
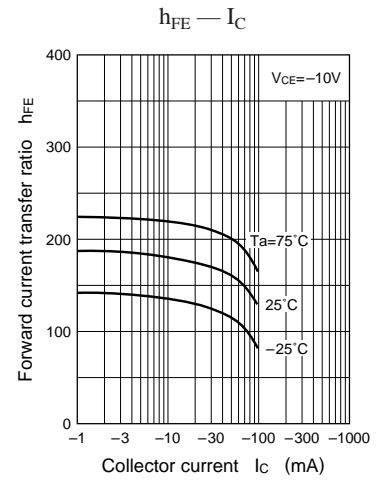
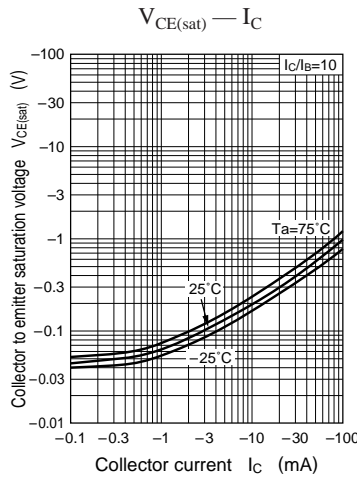
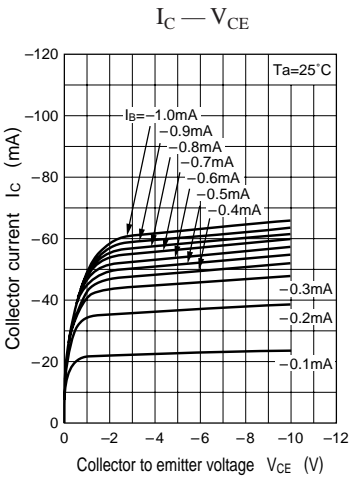


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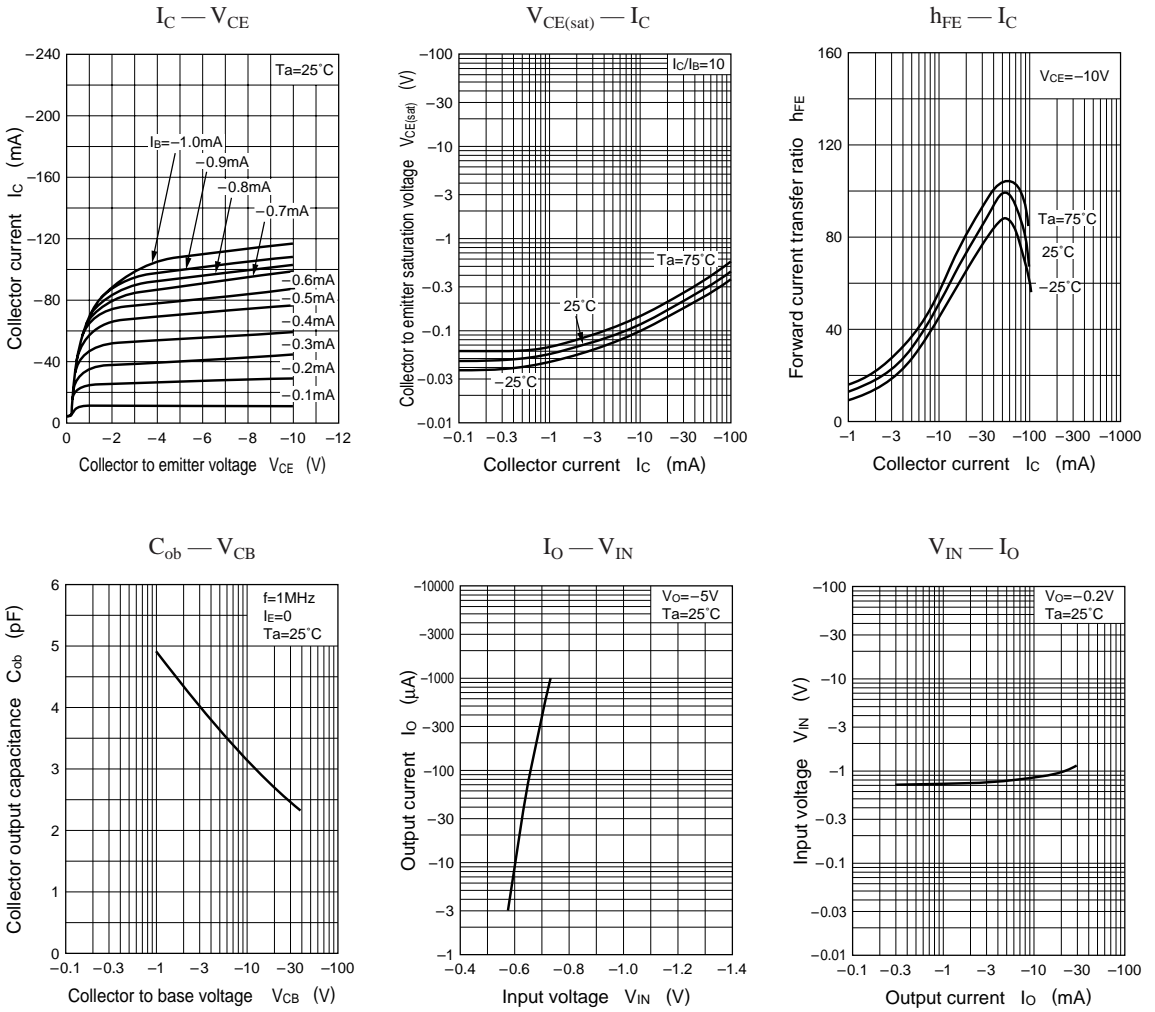




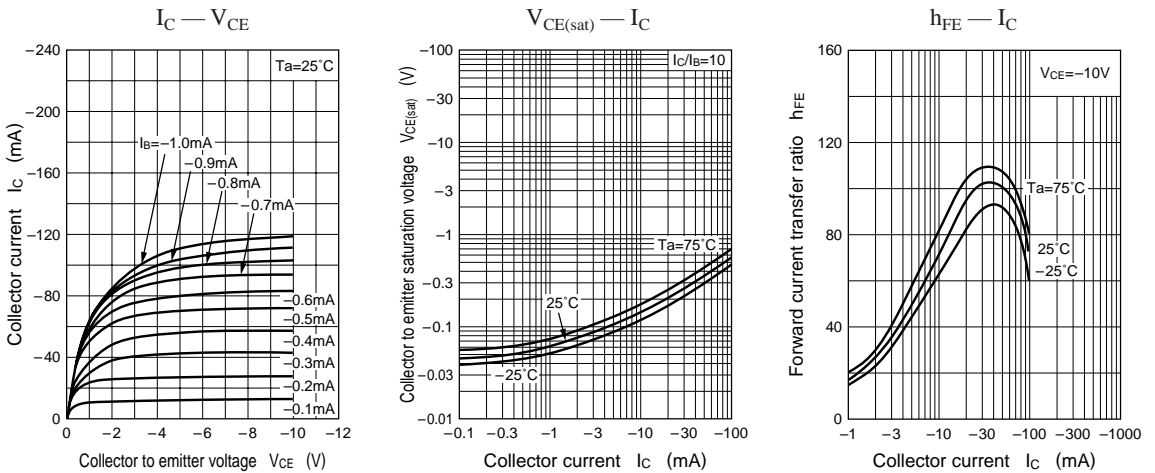
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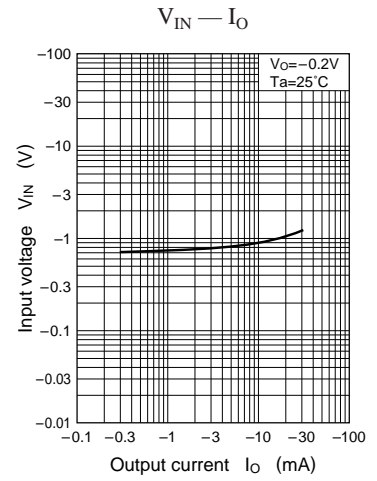
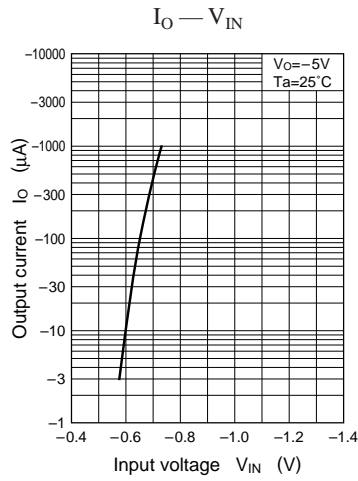
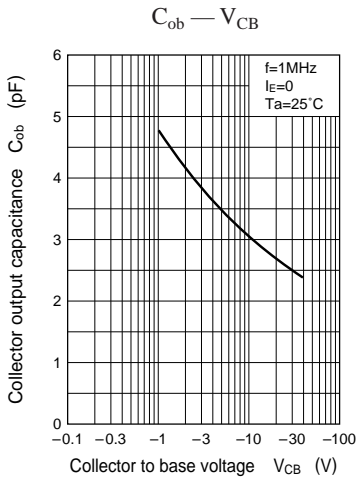


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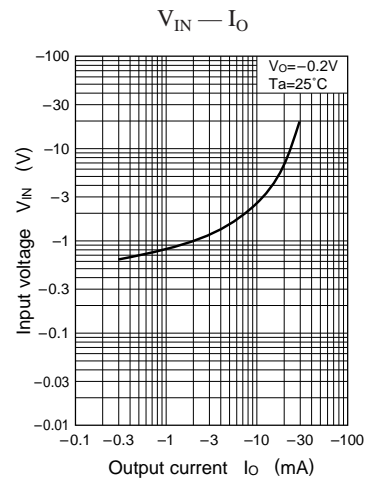
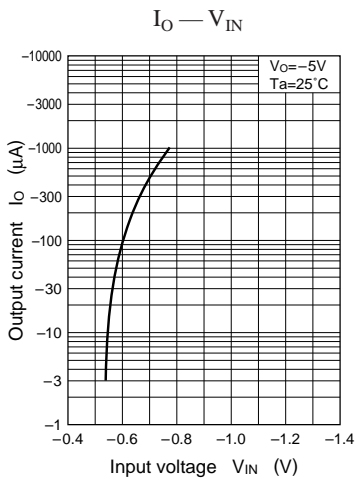
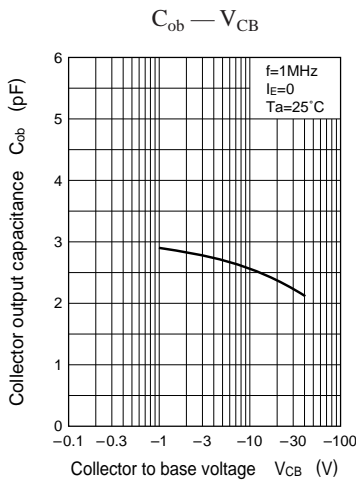
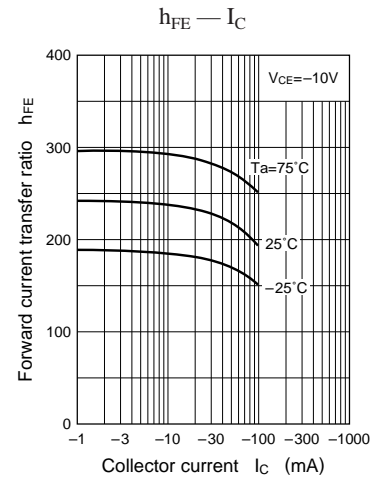
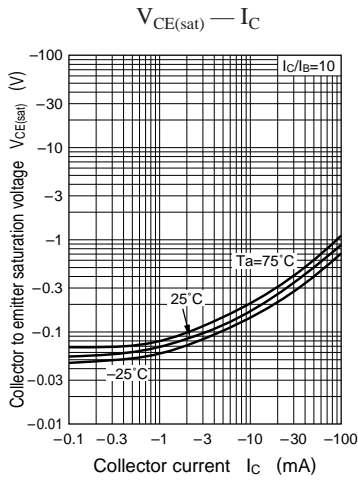
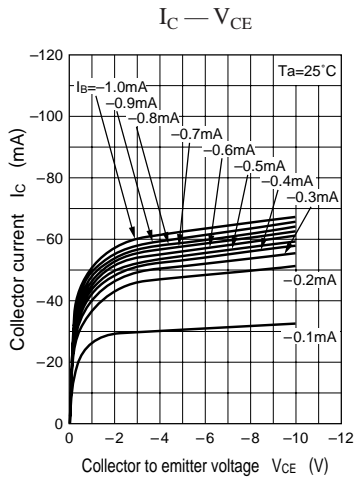


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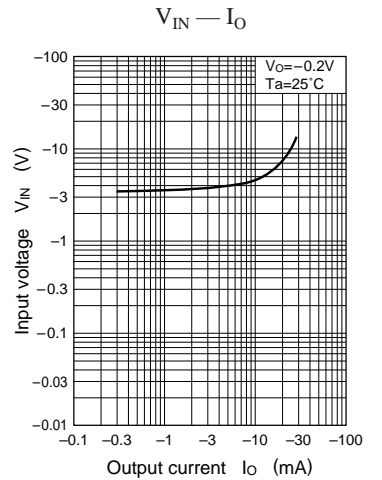
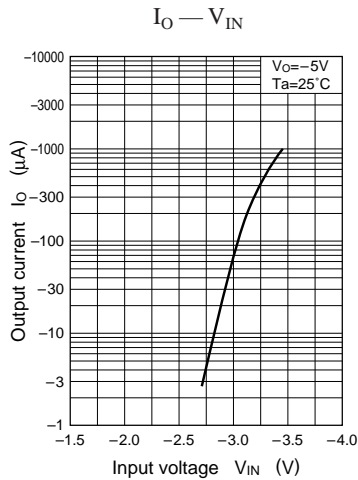
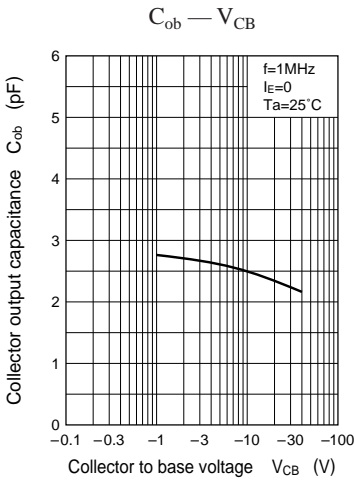
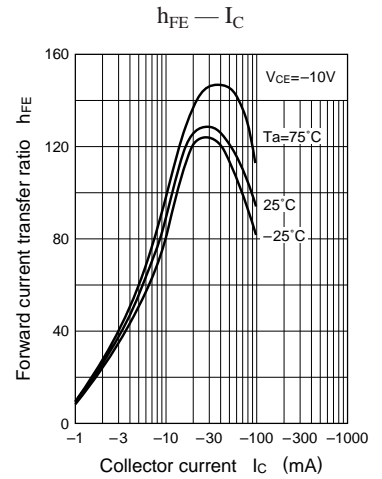
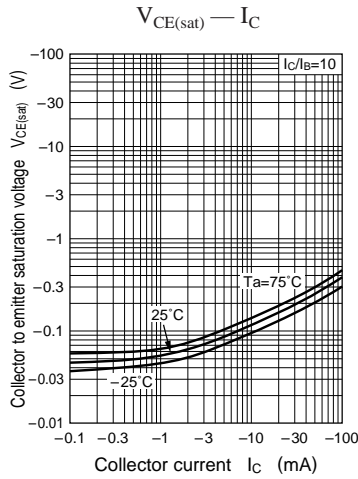
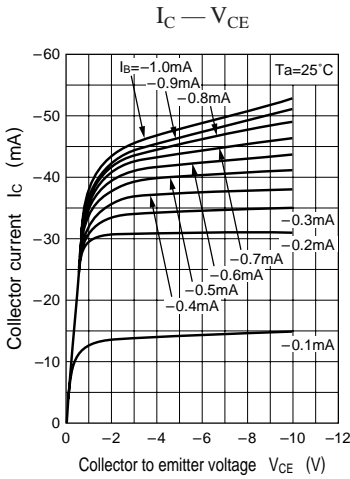




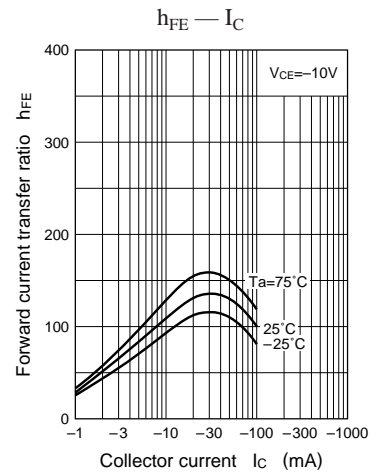
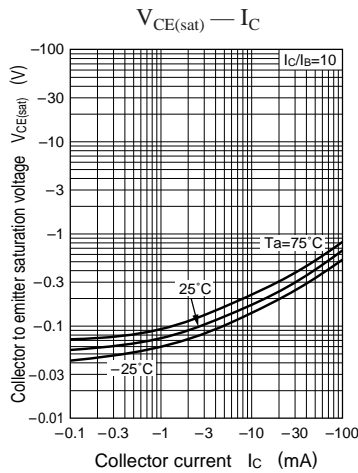
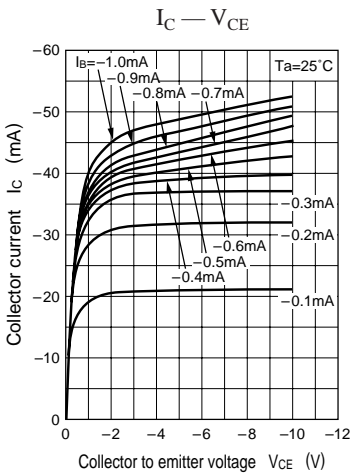
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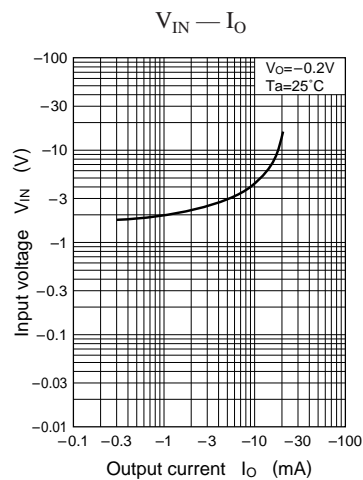
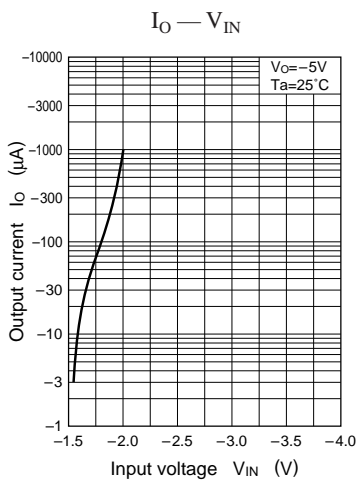
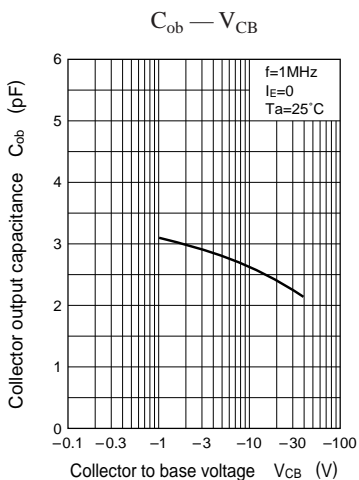


Characteristics charts of UN111D

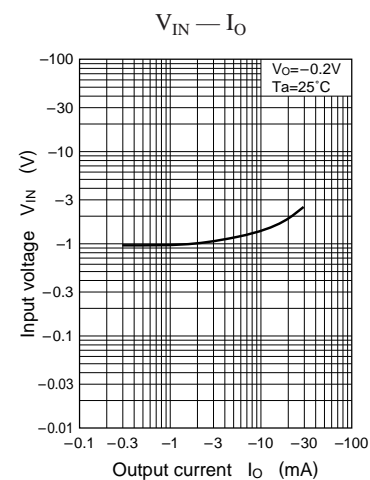
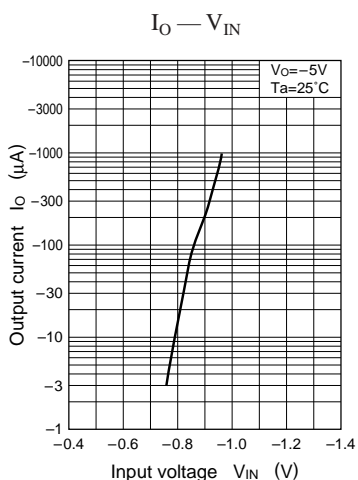
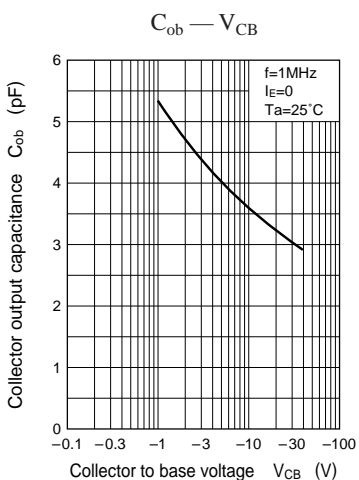
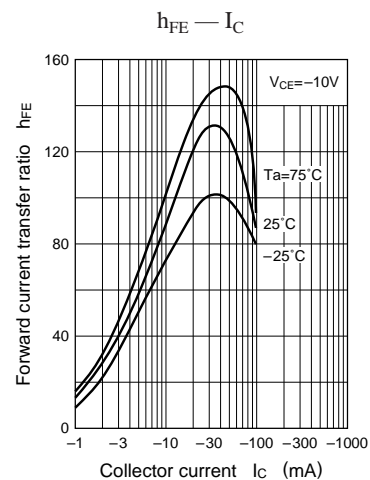
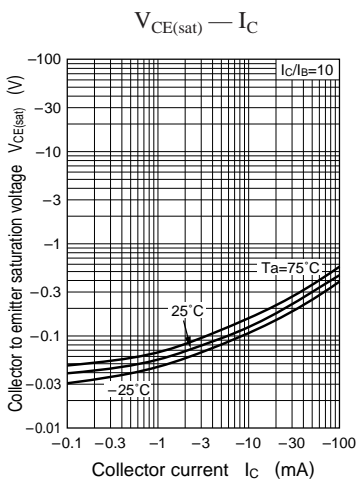
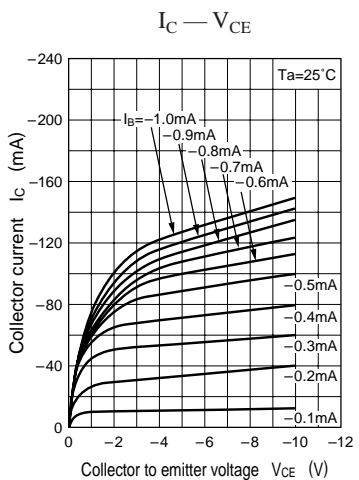


Characteristics charts of UN111E

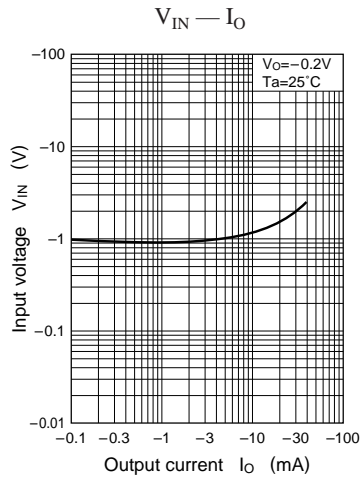
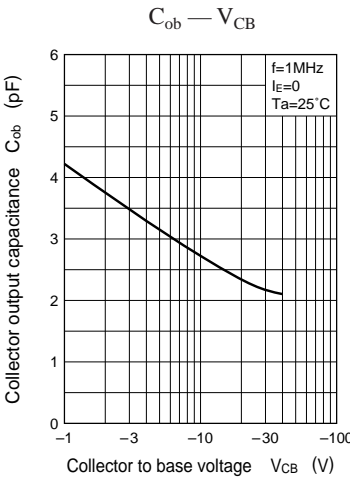
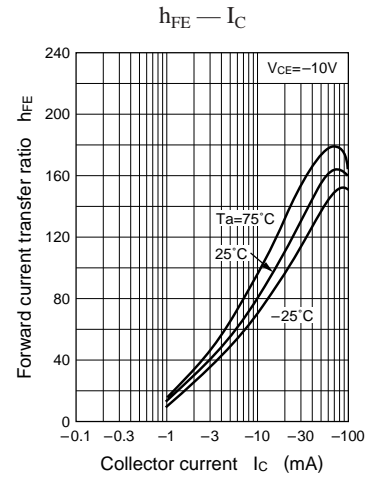
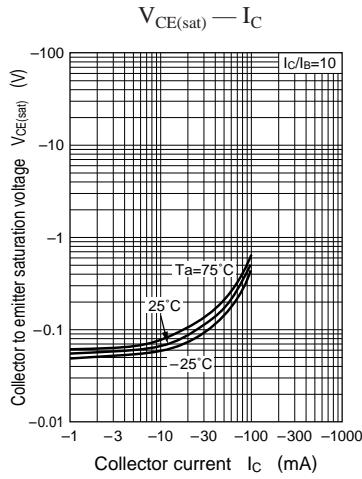
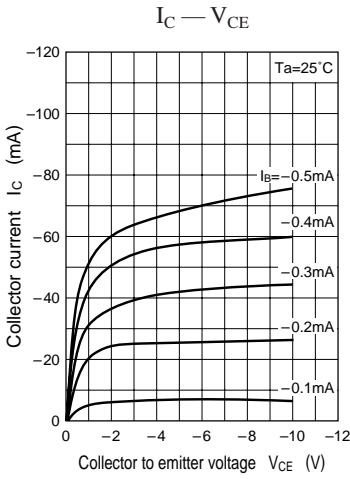




Characteristics charts of UN111F



Characteristics charts of UN111H



Characteristics charts of UN111L

